



## **ITEM 2**

**Moment of Silence in Honor of Commissioner Bob Johnson**





## **ITEM 5**

**Approve a Resolution of the Board of Commissioners of the San Joaquin Regional Rail Commission to Create an Ad Hoc Performance Review Process Committee of Two (2) Regular Voting Members to Recommend to the Commission at the May 2020 Board Meeting a process for performing the annual performance evaluation of the Executive Director**



## BACKGROUND

- The Commission conducts an annual performance evaluation of the Executive Director in accordance with her employment contract with SJRRC.
- The annual performance evaluation includes a review of Executive Director's accomplishments of objectives and goals, as well as a review of raising base annual salary.
- During the 2019 Director's performance evaluation, the Commissioners discussed creating an ad hoc committee comprised of two Regular Voting Commissioners which would recommend to the Commissioners a process and forms to assist the Commission in performing the Director's annual performance evaluation.



# RECOMMENDATION

- Fiscal Impact:
  - There is no fiscal impact.
  
- Recommendation:
  - Approve a Resolution of the Board of Commissioners of the San Joaquin Regional Rail Commission to Create an Ad Hoc Performance Review Process Committee of Two (2) Regular Voting Members to Recommend to the Commission at the May 2020 Board Meeting a Process and Forms for Performing the Annual Performance Evaluation of the Executive Director.
  
  - Appoint Two (2) Regular Voting Members



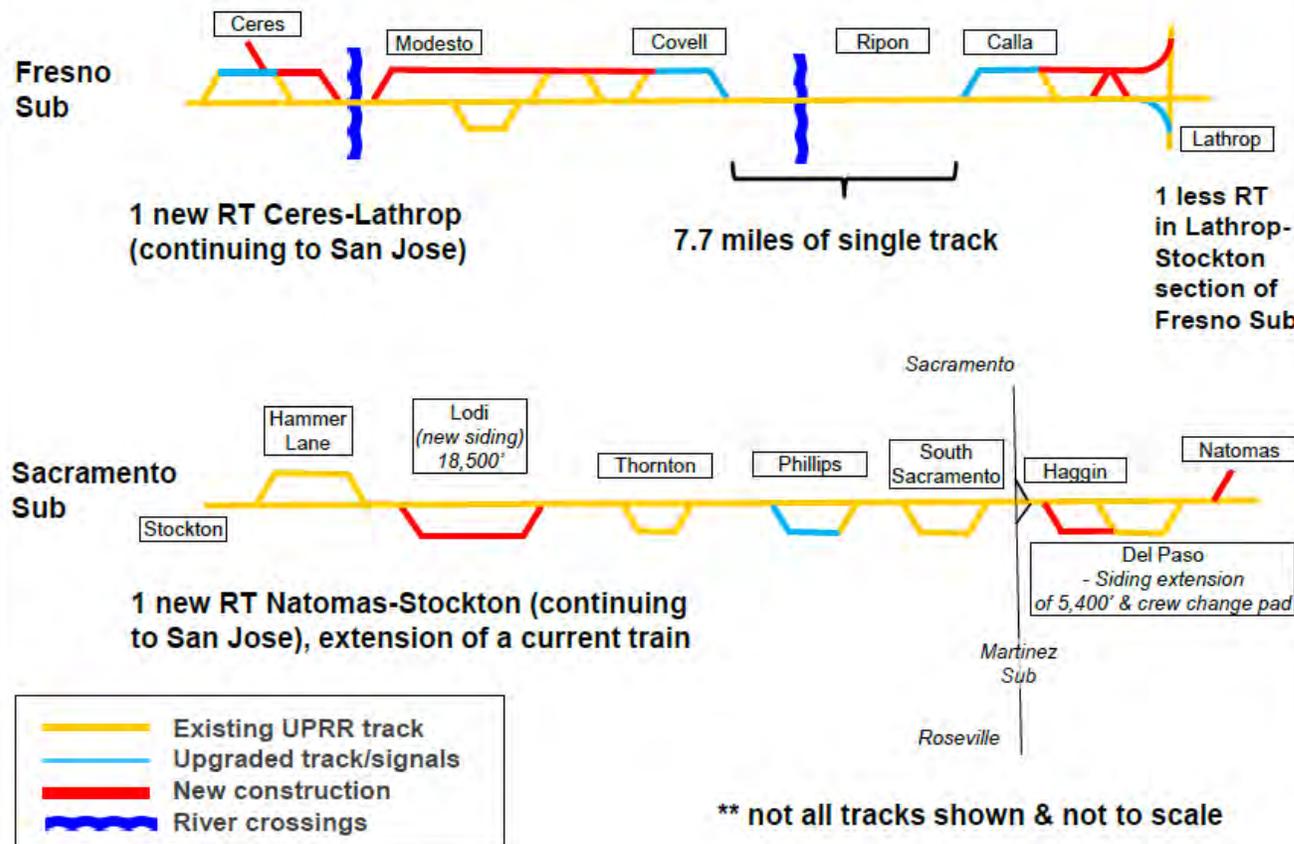
## **ITEM 6**

**Approve a Resolution of the Board of Commissioners of the San Joaquin Regional Rail Commission Approving Amendment 01 to the Agreement with Mark Thomas and Company, Inc. for the Ceres Station, Platform and Temporary Layover Facility to Increase the Total Compensation by an Amount of \$993,518 with the Total Contract Amount Not-To-Exceed \$2,820,351 and Authorizing the Executive Director to Execute Any and All Documents Related to the Project**



## ACEForward – Starting Phase

### Supports up to 1 passenger RT from Ceres & Natomas



- First phase of 2MT on Fresno Sub
  - 12.5 mi of new 2MT (51% of requirement for full project)
  - Retain single track over bridges for now: begin permitting process (long lead time for permitting)
  - Upgrade Covell & Calla sidings
  - New connection at Lathrop; universal crossover at South Lathrop ~MP 94.5
  - Stockton NW wye track
- Sacramento Sub: 4.5 mi of new sidings
  - Lodi – new siding (18,500')
  - Upgrade south switch Phillips, siding at Phillips
  - Del Paso – 1-mi siding extension, new access road for crew changes
- All new stations on 2MT sections or layover lead, 6.30 compliant
  - Future stations to be constructed in later phase
  - All other stations – platforms on both tracks (island or outside) and 6.30 compliant



## BACKGROUND

- SJRRC and Mark Thomas & Co. entered into an agreement for the final design Project Specifications & Estimates (PS&E) for the Ceres Station in June 2019.
- Upon finalization of scope of platform and trackwork with UPRR at each location, amendments will be presented for combining the station design and platform/track design into one package.
- The proposed amendment adds in the design cost for the four miles of new double track section that ties into the Ceres platform and layover facility.
- It maintains project delivery efficiency, minimizes risk, and avoids multiple engineering review submittals to the UPRR.
- It also will allow the project to be bid as one construction contract thus eliminating challenges associated with different construction contractors working on the project(s) simultaneously.





# CERES STATION AND TRACK WORK

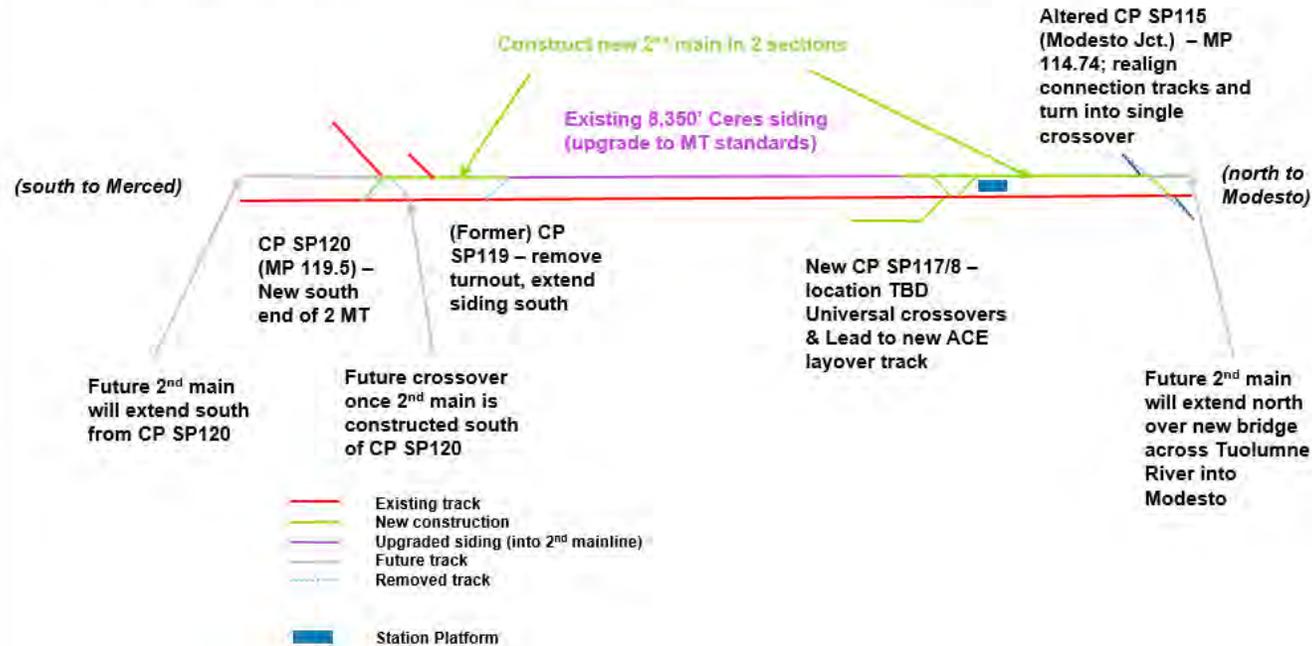




# BACKGROUND – UPRR ACE Forward Phase 1

## Ceres Area – Proposed Track Layout

### 2 main tracks will extend CP SP115-SP120



- 2<sup>nd</sup> main will extend from Modesto Jct. (SP115) to South Ceres (SP120), distance of 4.8 miles); future 2<sup>nd</sup> main will extend north & south from the endpoints
- Realign Modesto Jct. into single crossover
- New Island Platform for universal access
- New CP SP117/8 becomes universal crossover and lead to ACE storage track on east side
- Ceres Siding upgraded into 2<sup>nd</sup> main, extends to upgraded CP SP120
- Exact alignment of new track TBD





# RECOMMENDATION

- Fiscal Impact:
  - Funding for the amendment work anticipated in this fiscal year is identified in the approved Rail Commission Budget under Capital Projects Section. Funding for work in the following fiscal year will be incorporated into the 2020/2021 Capital Budget. This project is funded through the state SB 132 and TIRCP grant programs.
  
- Recommendation:
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## **ITEM 7**

**Approve a Resolution of the Board of Commissioners of the San Joaquin Regional Rail Commission Approving an Agreement with AECOM Technical Services, Inc. to Complete the Final Design for the Modesto Station Track and Platform Configuration Project, Not-To-Exceed \$2,450,367, and Authorizing the Executive Director to Execute Any and All Documents Related to the Project**



## BACKGROUND

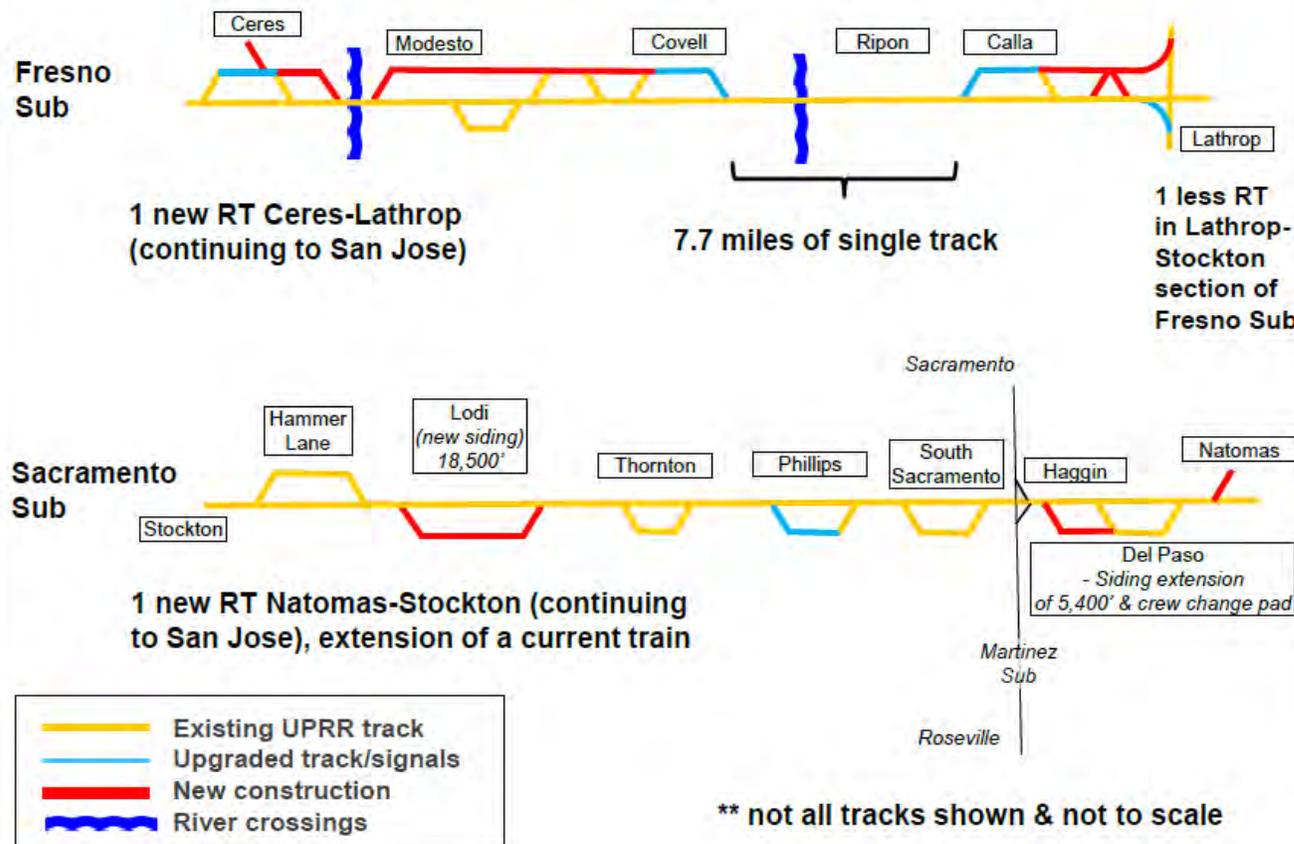
- In May 2019, the SJRRC Board authorized the Executive Director to negotiate and enter into an agreement with AECOM for to prepare the final design Project Specifications & Estimates (PS&E) for the Modesto Station.
- Given the proximity of cross streets near the Modesto Station, there were several alternative track and platform options to be discussed with Union Pacific. Staff elected to suspend executing the contract until further details could be examined.
- This coordination has been instrumental in determining strategic locations to construct new sections of double track and sidings between new station platform locations. This effort also helps to ensure freight operations can be maintained while implementing the Valley Rail project and minimizing impacts to areas surrounding the station platforms.





## ACEForward – Starting Phase

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# Modesto Station Track Limits



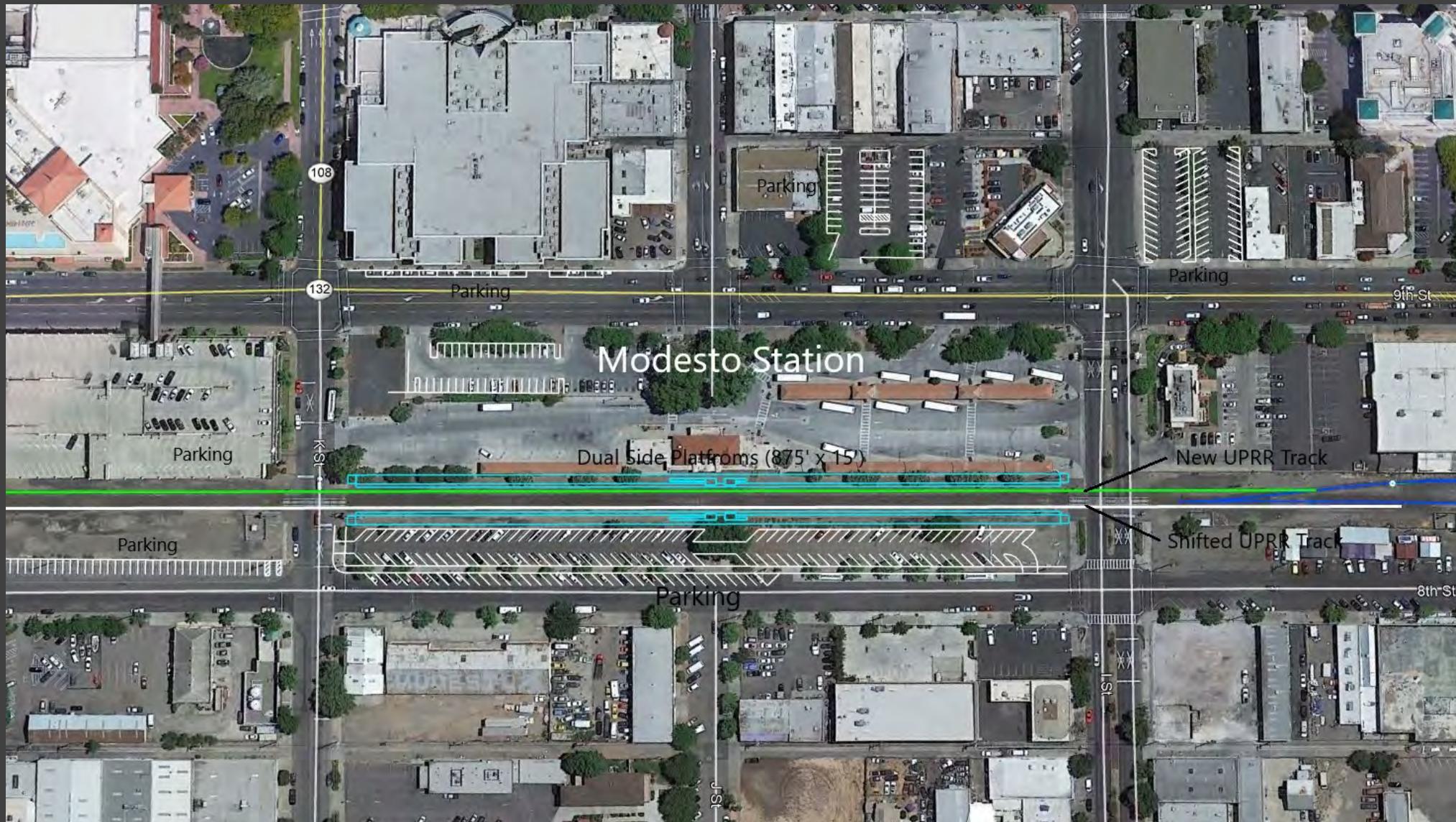


## BACKGROUND

- SJRRC and UPRR staff met on site in Modesto to further evaluate the platform configuration and track alignment leading to and from the station.
- As a result, there was consensus within the group that the most efficient way to construct the new platform was to extend the project limits to include the new double track sections.
- The proposed amendment includes funding for the design of seven miles of track work (double track, siding extensions, etc.).
- The intent of this effort is to avoid multiple engineering review submittals to the UPRR and associated rework by SJRRC's consultant preparing the final design.
- It also will allow the project to be bid as one construction contract thus eliminating challenges associated with different construction contractors working on the project(s) simultaneously.



# MODESTO STATION

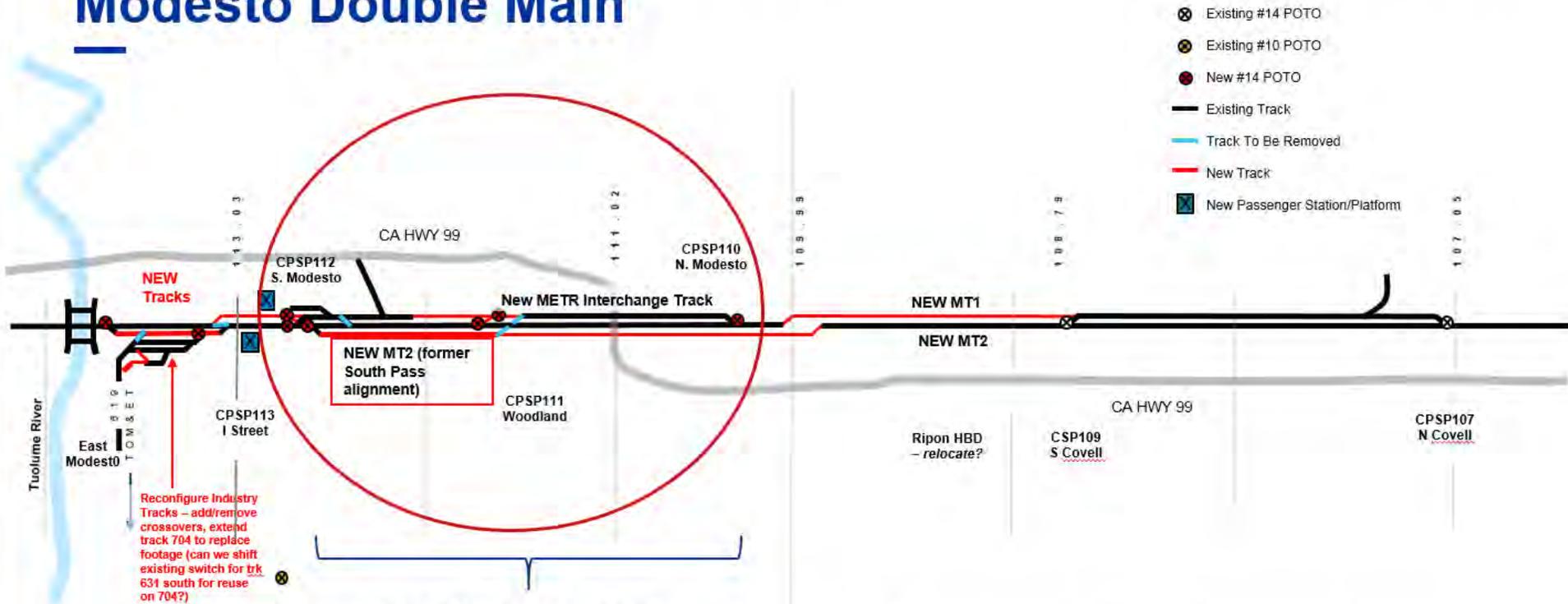




# BACKGROUND – UPRR ACE Forward Phase 1

2 main tracks from north of Tuolumne River to North Covell (6.7 miles)

## Modesto Double Main



Reconfigure Industry Tracks – add/remove crossovers, extend track 704 to replace footage (can we shift existing switch for trk 631 south for reuse on 704?)

**See next slide for detail**

- Track 630 becomes alignment for new 2<sup>nd</sup> main
- Rebuild tracks 631, 632 in Modesto & extend track 704 to replace footage
- Add switch at south end

- See next slide for M&ET & downtown Modesto track details
- Connect North Modesto with Covell siding
- Next Phase will extend 2<sup>nd</sup> main north of Covell





# BACKGROUND – UPRR ACE Forward Phase 1

## M&ET Interchange & Main Track Alignment Proposal

M&ET interchange to north pass side, retains escape xover; New MT2 on south pass alignment

### Current track configuration



### Proposed Changes

If platform extends to north side of L St, Demolish loading dock, shorten track 738 as needed

Retain existing North Pass (and power switch at south end, SP 111) and extend south into track - can Woodland Ave. crossing be extended to 3 tracks?



- Existing track
- New construction for 2<sup>nd</sup> main
- Working tracks (upgrade & new)
- Removed track

### End Result – Current Main alignment = Main 1; Main 2 - S Pass side; M&ET setoff – N Pass side



2 mains extend to CP SP107 – North end of Covell

\* Need to evaluate 3-track crossing at Woodland Avenue due to intersection





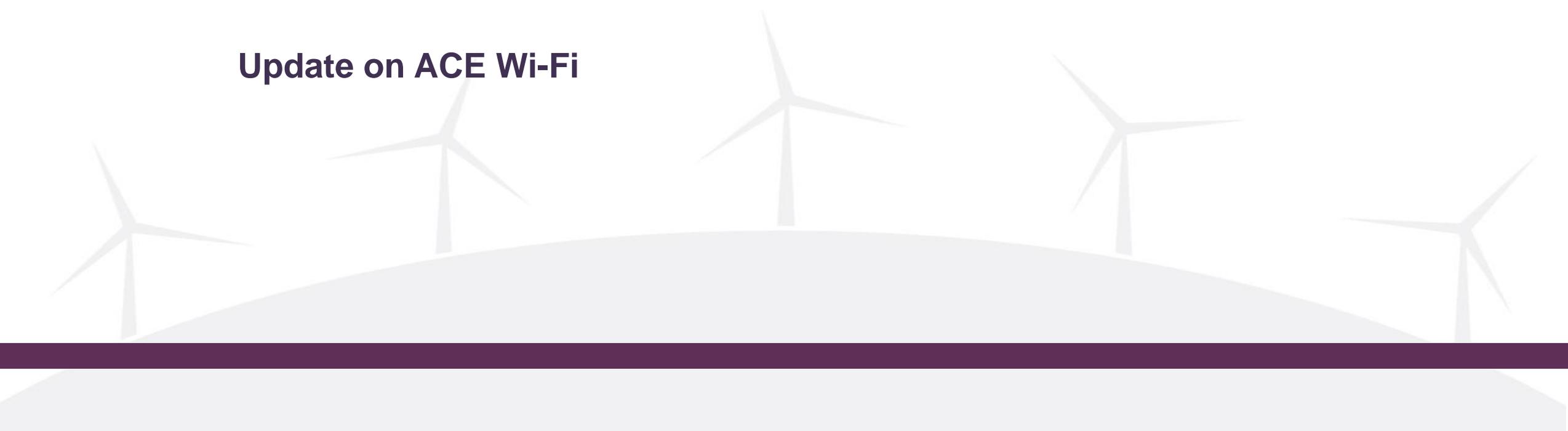
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## **ITEM 8**

### **Update on ACE Wi-Fi**





## Wi-Fi SERVICE BACKGROUND

- In June of 2006, SJRRC entered into its first agreement to provide Wi-Fi service onboard ACE.
  - The original contractors utilized a satellite solution to provide onboard connectivity.
  - At this time, the Wi-Fi service offered was innovative and state-of-the-art while also presenting challenges to the vendors to maintain sufficient connection for passengers.
- In May of 2009, a new Wi-Fi system was launched on one ACE train set replacing the original solution.
  - This Wi-Fi solution utilized cell carriers and was innovative and state-of-the-art.
- In June of 2013, the Wi-Fi system was expanded to the remaining cars.
  - This Wi-Fi system operated and was maintained for the life of the previous Wi-Fi program.





## Wi-Fi SERVICE BACKGROUND

- In Summer 2018, staff began to notice a decline in the quality of the onboard Wi-Fi System.
  - The quality issues continued to intensify over the following months.
  - Steps were made with the vendor to patch the system, but the steps recommended were not successful.
  - The system quality was affected by two primary factors:
    - Increased ridership and demand on the system
    - Outdated technology that was not designed to be regularly optimized with the latest innovations.
- Staff determined the best route was to continue with the current service, while developing and releasing a solicitation for a new Wi-Fi system or procuring a Wi-Fi system by other means.
- The onboard Wi-Fi was deactivated in July 2019 when the contractor decided not to renew the agreement.



## Wi-Fi SERVICE FUTURE

- Should we still offer Wi-Fi?
  - Wi-Fi is the most requested amenity for the service
  - As an amenity across the industry, Wi-Fi is growing in demand
  - It is smart to invest in a platform based system that can help offer not only Wi-Fi but other applications envisioned for the service to reduce future capital expense and installation time.





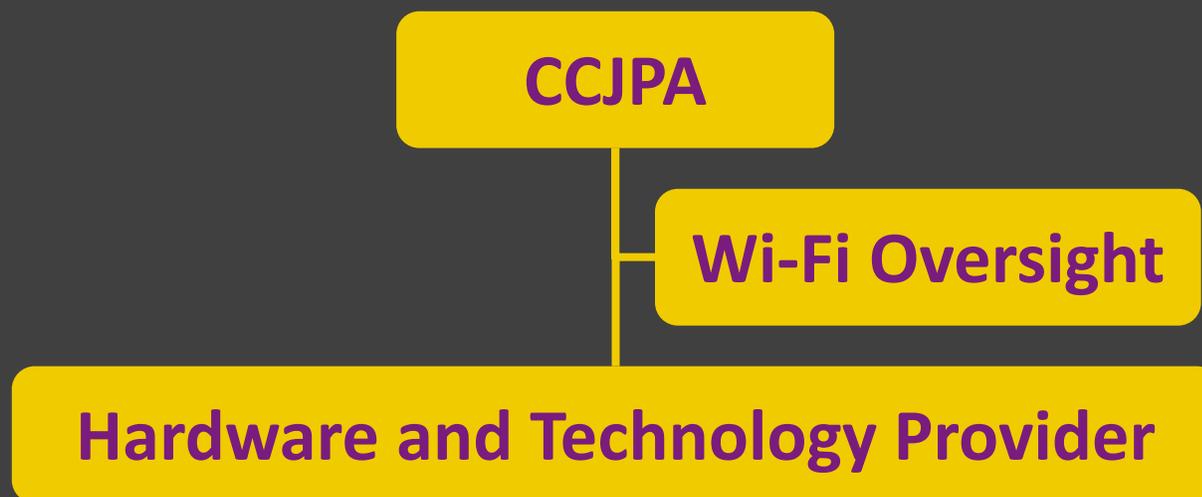
## CCJPA Wi-Fi PROCUREMENT

- The State's Intercity Passenger Rail fleet has similar issues with its Wi-Fi system such as component failures and degradation in service.
  - It was still operating its service when it determined to start a program through the Capitol Corridor Joint Powers Authority (CCJPA) to modernize and "future-proof" the Wi-Fi system on the State's Intercity Passenger Rail fleet operating on the Capitol Corridor, San Joaquins, and Pacific Surfliner.
- CCJPA released two solicitations to separately procure a Next Generation Wi-Fi solution, as well as, a contractor to provide management and oversight of the solution during both the deployment and operational phases.



# CCJPA Wi-Fi PROCUREMENT

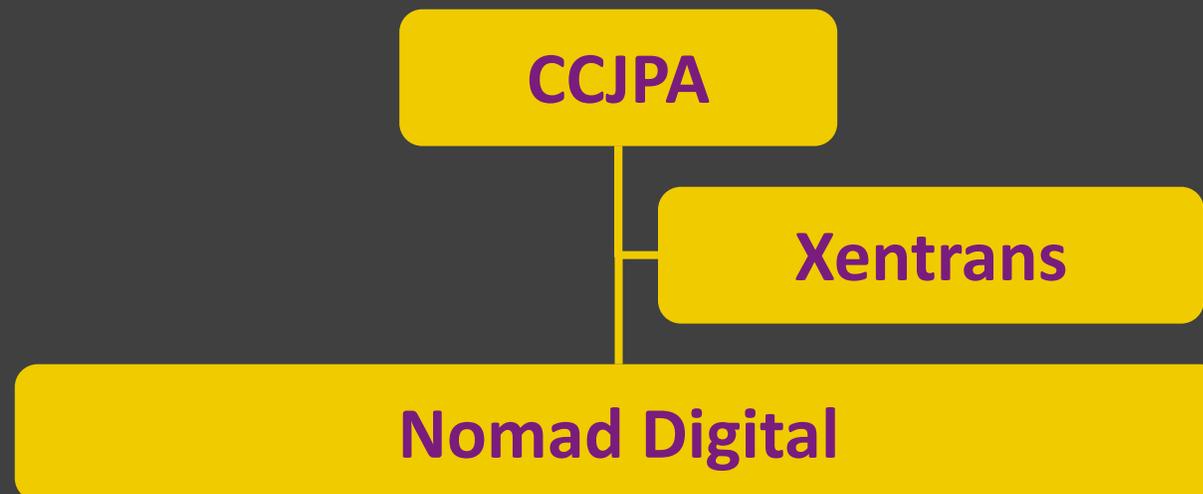
- The Next Generation Wi-Fi solution includes new hardware, software, installation and support.
- CCJPA's procurement was intended to allow other agencies to use its procurement for those services to save agencies time, draw on its expertise, and reduce costs by multiple agencies sharing the same platform.
  - The SJRRC Operations Superintendent sat on the evaluation panel for CCJPA for this procurement.





# CCJPA Wi-Fi PROCUREMENT

- As a result of the procurement, CCJPA awarded its contracts to Xentrans for Wi-Fi Management and Oversight Services and Nomad Digital for Wi-Fi hardware, installation, maintenance, and service operations.
  - Nomad Digital is contracted to provide the Wi-Fi solution
  - Xentrans is contracted to ensure the solution is specified properly, delivered as contracted and then operates within set performance metrics.





# CCJPA Wi-Fi PROCUREMENT

- The Wi-Fi procurement is intended to include the provision for the vendor to provide system upgrades over time to prevent obsolescence as technology evolves.
  - The vendor must present a technical roadmap every six months to the participating agencies to describe both near-term changes (6-12 months) in technology and future technology (1-3+ years) that is also being developed that could be of interest to agencies.
  - This also serves as an opportunity for the agencies to provide input to the process and with their future needs.
- The intention of this process is to prevent what has happened with the ACE, CCJPA, SJJPA and other Wi-Fi systems in the past where they were satisfactory when they were first deployed but lacked a structured approach to ensure that technology was refreshed in a planned/strategic manner over time resulting in degrading performance and customer dissatisfaction.
- Through initial discussions with CCJPA and the vendors, staff plans to recommend this solution for ACE Wi-Fi service.
  - To appropriately specify, negotiate, and onboard expertise, Xentrans has been contracted to support staff efforts.

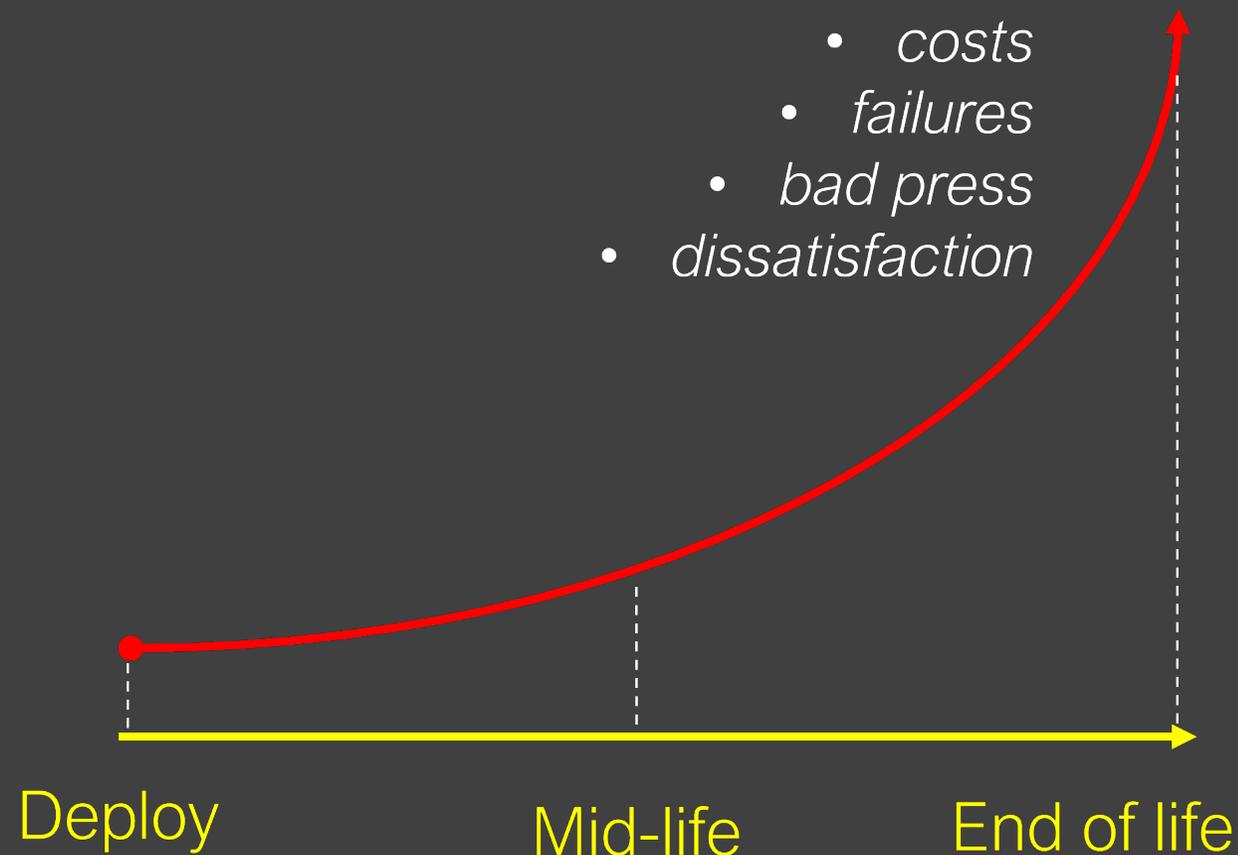


# NEXT GENERATION WI-FI SOLUTION

## CCJPA Perspective: “What was wrong with the old system”

- Previous system deployed in 2011
- Operational management was focused on break-fix with no long-term strategy
- Equipment aged in place and degraded over time
- Vendor focus was on new projects and opportunities

- *costs*
- *failures*
- *bad press*
- *dissatisfaction*





# NEXT GENERATION WI-FI SOLUTION

- What is Next Generation Wi-Fi
  - What is it?
  - How does it work?
  - The component building blocks
  - How it is future proofed?



# NEXT GENERATION WI-FI SOLUTION

- What is Next Generation Wi-Fi?

  - What is it?

  - How does it work?

  - The component building blocks

  - How it is future proofed?

- Provision of an “on-train data center”

  - Management of train to shore connectivity

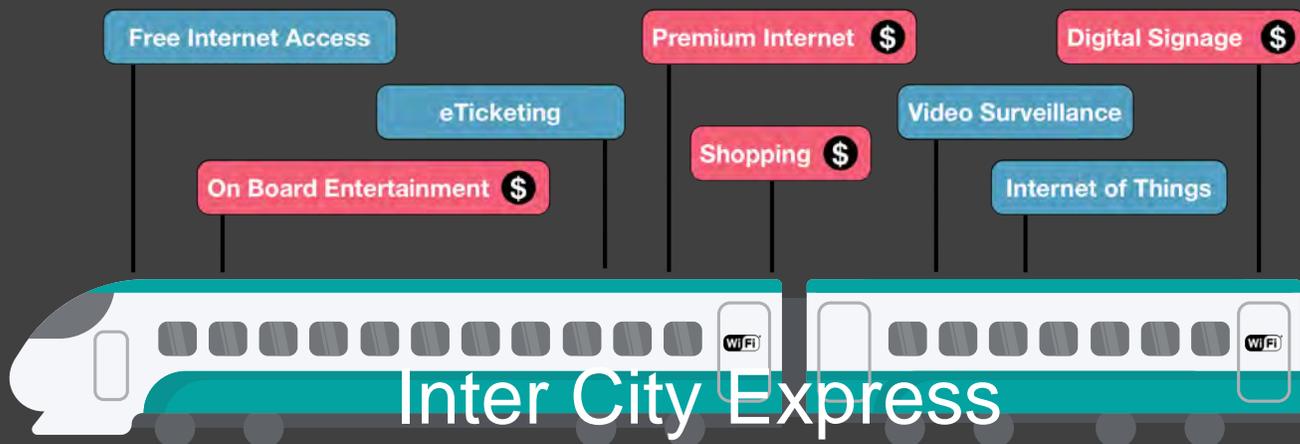
  - Passenger Wi-Fi: secure authentication, policy management

  - Capable of supporting multiple applications on a ruggedized server

  - Nomad or third-party applications – CCTV, PA, PIS etc.

  - Management functionality and reporting

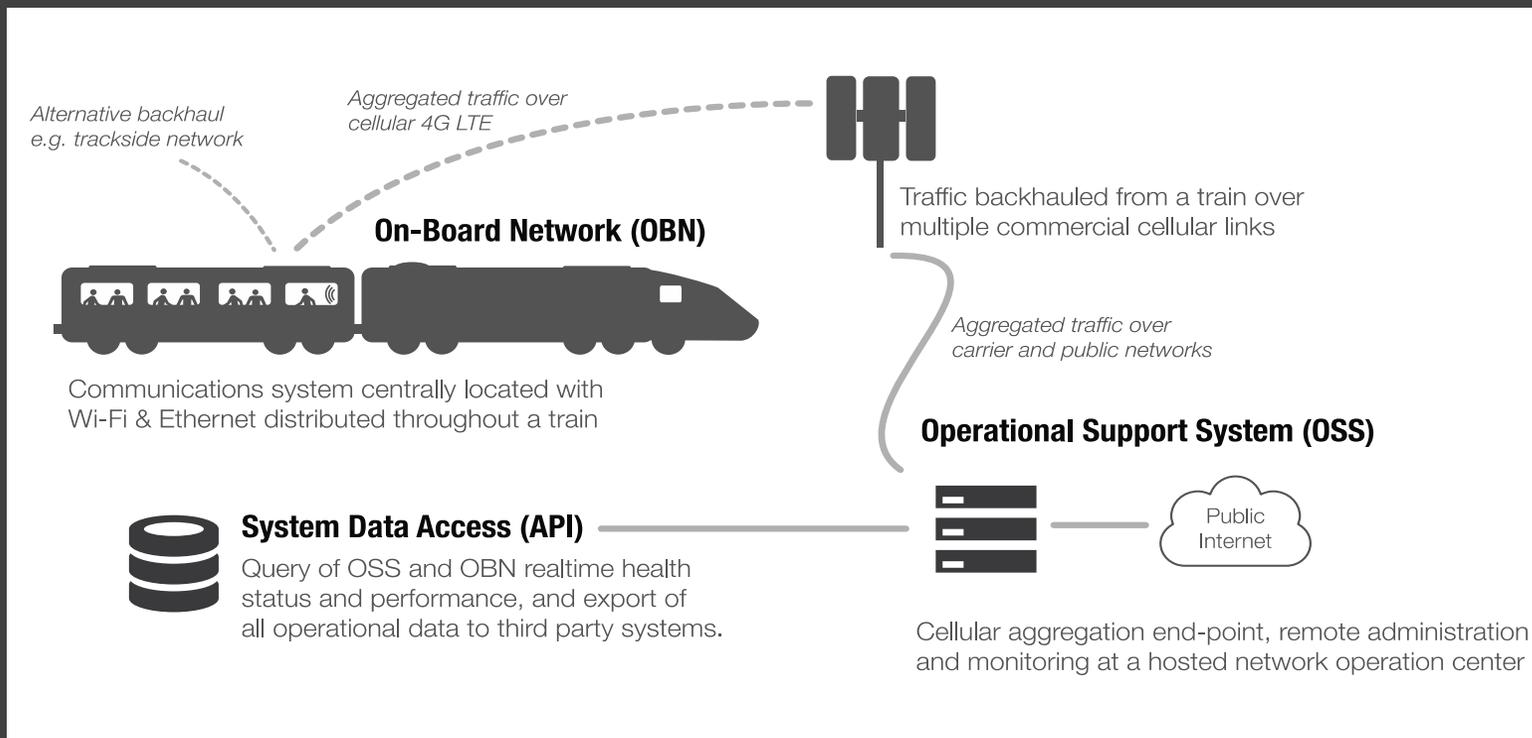
  - Cybersecurity protection built in





# NEXT GENERATION WI-FI SOLUTION

- What is Next Generation Wi-Fi?
  - What is it?
  - **How does it work?**
  - The component building blocks
  - How it is future proofed?



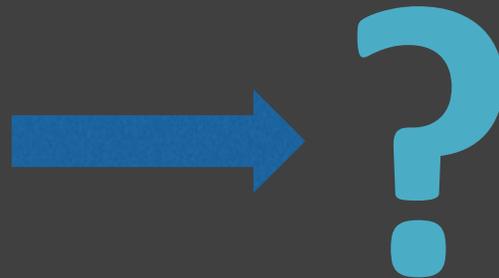
- Open data architecture – share data between applications
- Hardware / Vendor agnostic (standards-based design)
- Cyber security protection built in from beginning
- Multi-service platform
- Managed virtual / containerized platform



# NEXT GENERATION WI-FI SOLUTION

## ■ What is Next Generation Wi-Fi?

- What is it?
- **How does it work?**
- The component building blocks
- How it is future proofed?



- Not locked to particular vendors
- Using national / industry standards
- Simplifies integration with third party systems

- Open data architecture – share data between applications

- Hardware / Vendor agnostic (standards-based design)

- Cyber security protection built in from beginning

- Multi-service platform

- Managed virtual / containerized platform



# NEXT GENERATION WI-FI SOLUTION

- What is Next Generation Wi-Fi?
  - What is it?
  - **How does it work?**
  - The component building blocks
  - How it is future proofed?



- NIST / NIS Requirements
- Assumes that any system can be compromised
- Anomaly detection and alerting
- Uses machine learning algorithms

- Open data architecture – share data between applications
- Hardware / Vendor agnostic (standards-based design)
- Cyber security protection built in from beginning
- Multi-service platform
- Managed virtual / containerized platform



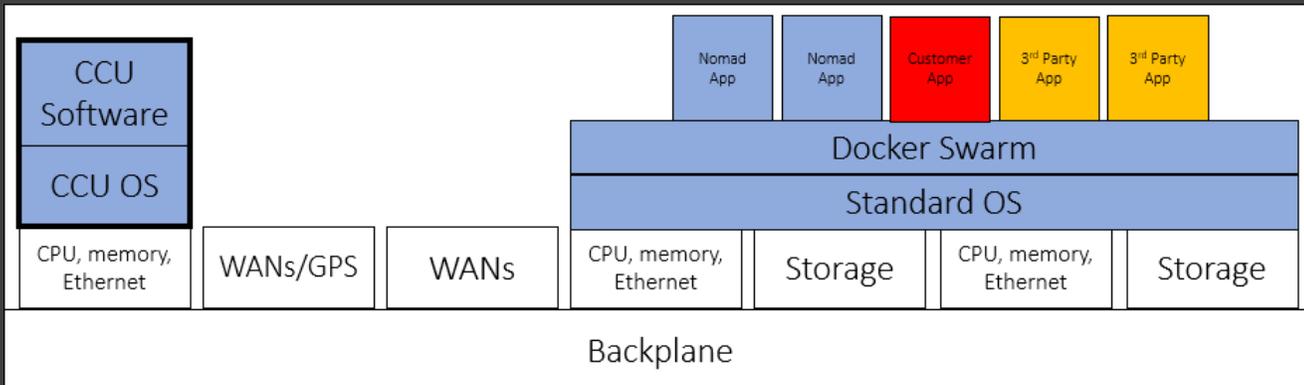
# NEXT GENERATION WI-FI SOLUTION

## What is Next Generation Wi-Fi?

- What is it?
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- Open data architecture – share data between applications
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- Multi-service platform
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# NEXT GENERATION WI-FI SOLUTION

- What is Next Generation Wi-Fi?
  - What is it?
  - How does it work?
  - **The component building blocks**
  - How it is future proofed?

## Central Server – One per train

- Ruggedized rail approved server
- Supplier has a multi-year support guarantee
- Modular – add and upgrade blades not whole unit
- Gigabit interfaces
- Multi-Gigabit backplane





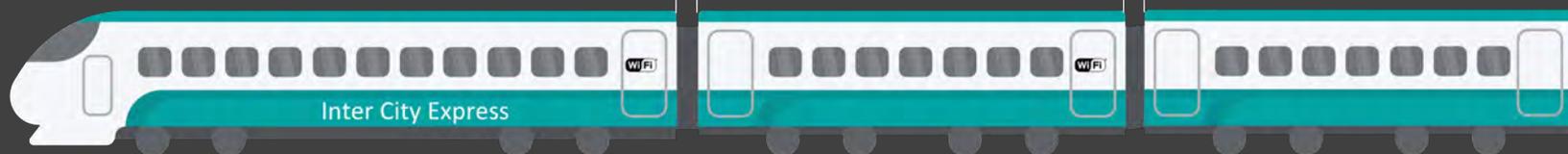
# NEXT GENERATION WI-FI SOLUTION

- What is Next Generation Wi-Fi?
  - What is it?
  - How does it work?
  - **The component building blocks**
  - How it is future proofed?



## Wired ethernet trainline "DTL":

- Self configures with mixed consist train
- Rugged 10GigE connections
- Spare connections for future applications
- Whole train network is maintained rather than a per-car network



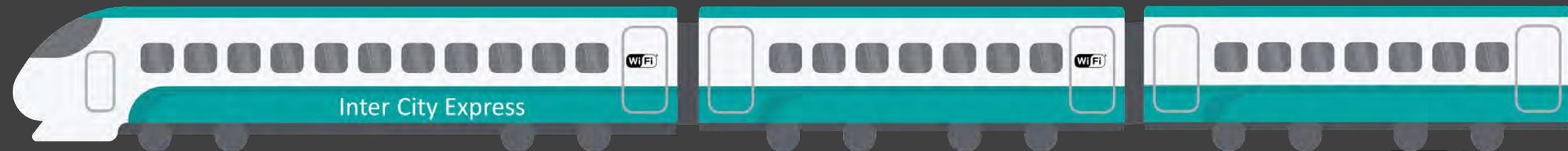


# NEXT GENERATION WI-FI SOLUTION

- What is Next Generation Wi-Fi?
  - What is it?
  - How does it work?
  - **The component building blocks**
  - How it is future proofed?

## Managed Ethernet Switches:

- Self configures
- Rugged Rail Approved
- Spare connections for future applications





# NEXT GENERATION WI-FI SOLUTION

- What is Next Generation Wi-Fi?
  - What is it?
  - How does it work?
  - The component building blocks
  - **How it is future proofed?**
    - Nomad presents their **technology roadmap** every six months to all participating agencies
    - Each component has a defined “**usable life**” and “**supported life**”
    - The contract with Nomad requires that they are ready to swap or upgrade and end-of-life component for the latest technology



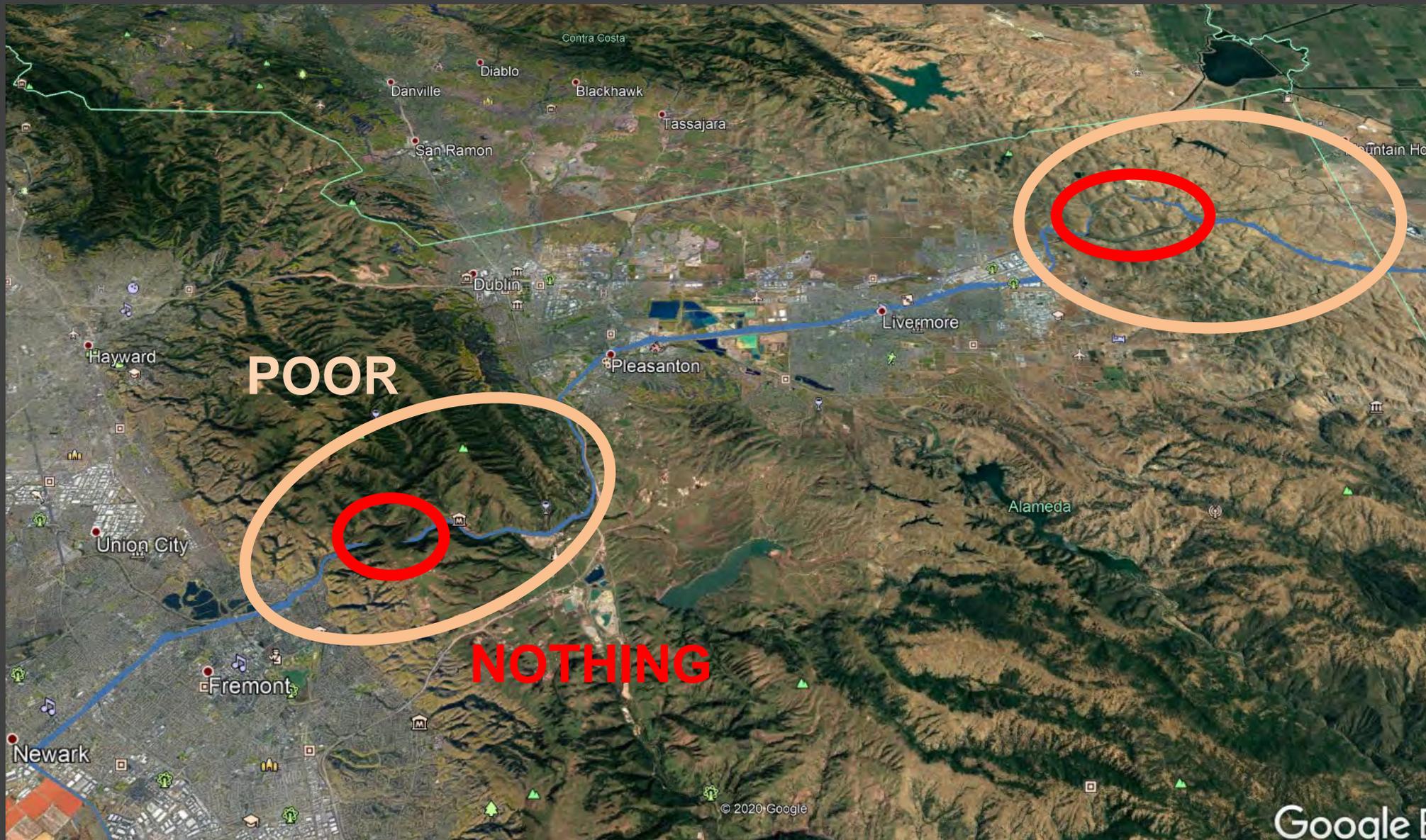
# LIMITATIONS OF CELLULAR TECHNOLOGY

- Using public cellular networks there is always a limitation in what level of service or performance can be guaranteed.
- Survey was carried out on the service to identify areas of poor and no coverage.
- Robust messaging plan how to notify people on the train where there is no coverage.
- Limit what you allow passengers to do on the network – no streaming video, throttle high users.
- Future 5G deployments will be predominately suburban, they rely on a very dense network deployment to achieve claimed results. Unlikely to affect train performance overall.





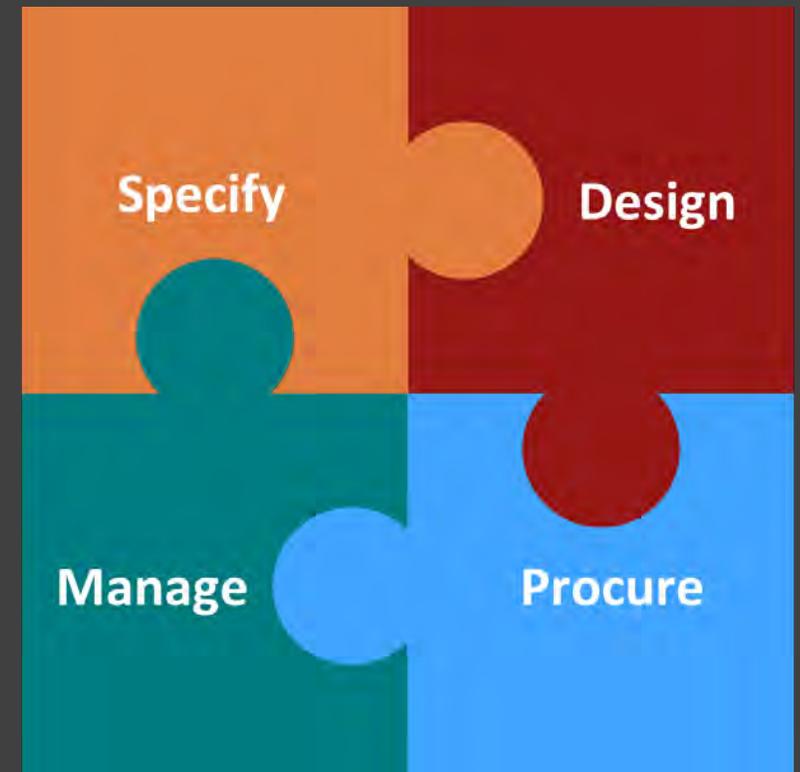
# LIMITATIONS OF CELLULAR TECHNOLOGY





# XENTRANS INVOLVEMENT

- Xentrans has been supporting Wi-Fi projects on behalf of transit agencies in California (and other regions) as an extension of staff since 2011. Work typically falls into three broad areas:
  - **Procurement phase:**
    - Technical Specification Development
    - System Design
    - Procurement Support & Work Directive Development
  - **Installation Oversight & Validation**
  - **System Support and Management (Tier 1)**
    - Data Analysis & Business Intelligence
    - Network Performance Monitoring & Analysis
    - Service Level Agreement (SLA) Auditing





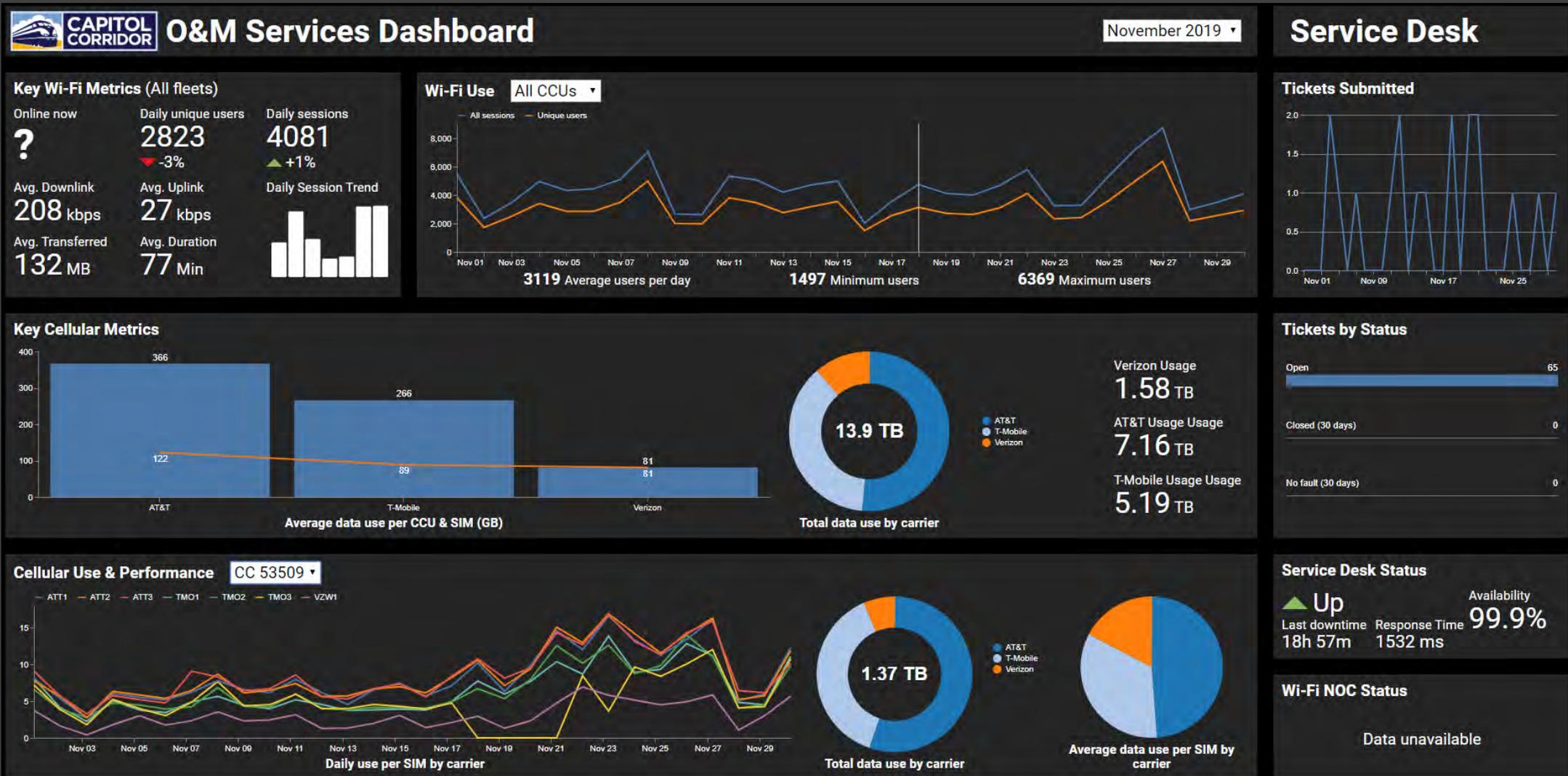
# XENTRANS INVOLVEMENT

- **Why Tier 1 support?**
- Xentrans has developed processes and tools to manage Wi-Fi & other technology deployments, which integrate with vendor back-office systems and independently audit & verify solution in-service operation.
  - Independent oversight of the deployed solution
  - Tier 1 Help Desk & Trouble Ticket management
  - Services Operation & Maintenance (O&M) Dashboard for Key Performance Indicators (KPIs)
  - User Experience Probe
  - API-based ad-hoc analysis and raw data access
  - Cellular coverage mapping and analysis
  - Help drive roadmap discussion



# XENTRANS INVOLVEMENT

## User Experience Dashboard





## WHAT'S NEXT

- Staff and Xentrans are continuing to negotiate the Nomad Digital contract
  - Appropriate Operational System
  - Component Pricing
  - Installation Plan

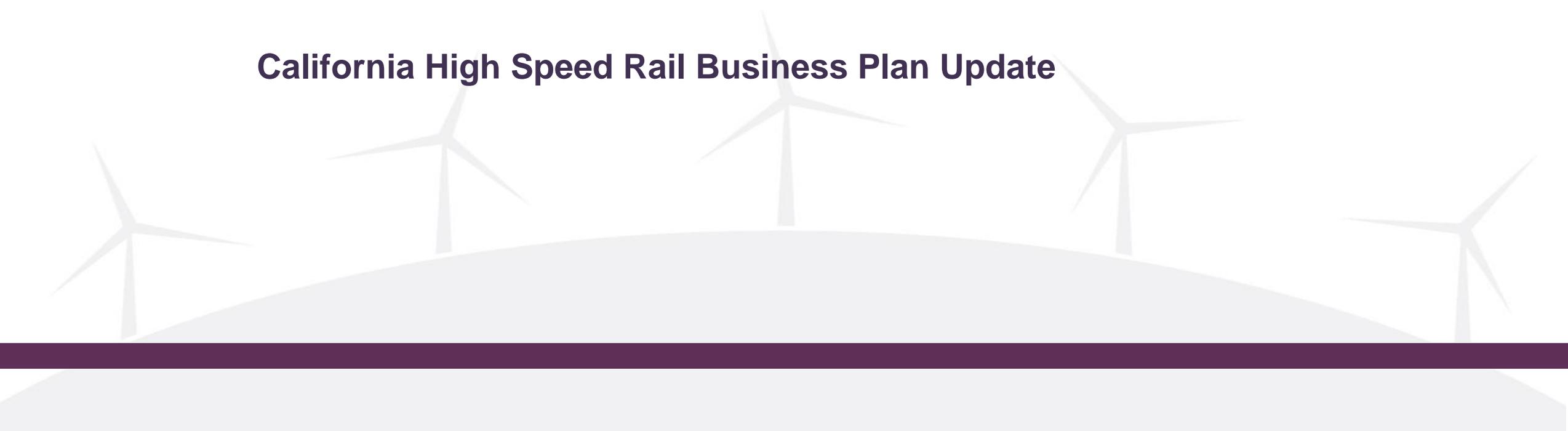
Capital Expense Estimate	Operating Expense Estimate Per Year
\$1.25 – 1.6 Million	\$500, 000

- Staff plans to finalize negotiations and bring both the Nomad Digital and Xentrans contracts at the next board meeting.
  - Pending approval, estimated “go-live” target is in the Fall of 2020.



## **ITEM 9**

### **California High Speed Rail Business Plan Update**



**LEGEND**

-  Electric High-Speed Rail Under Development
-  Environmental Documents Underway
-  Cleared for Project Development
-  Major Station Funding



- 350 miles of electrified high-speed rail under development
- Remaining Phase 1 environmental underway



# The Governor's Proposal

- “In the Central Valley, we are currently building 119 miles of high-speed rail infrastructure. With available funding, we propose advancing 52 more miles to deliver an initial 171-mile operating line between Merced and Bakersfield with seamless connections to other passenger rail systems—the San Joaquins and the Altamont Corridor Express (ACE) at Merced and Thruway Bus services at Bakersfield— until the Silicon Valley to Central Valley Line is fully built.”
- “Commence testing of electrified high-speed trains by 2025 and put electrified high-speed trains in service by 2028-29.”

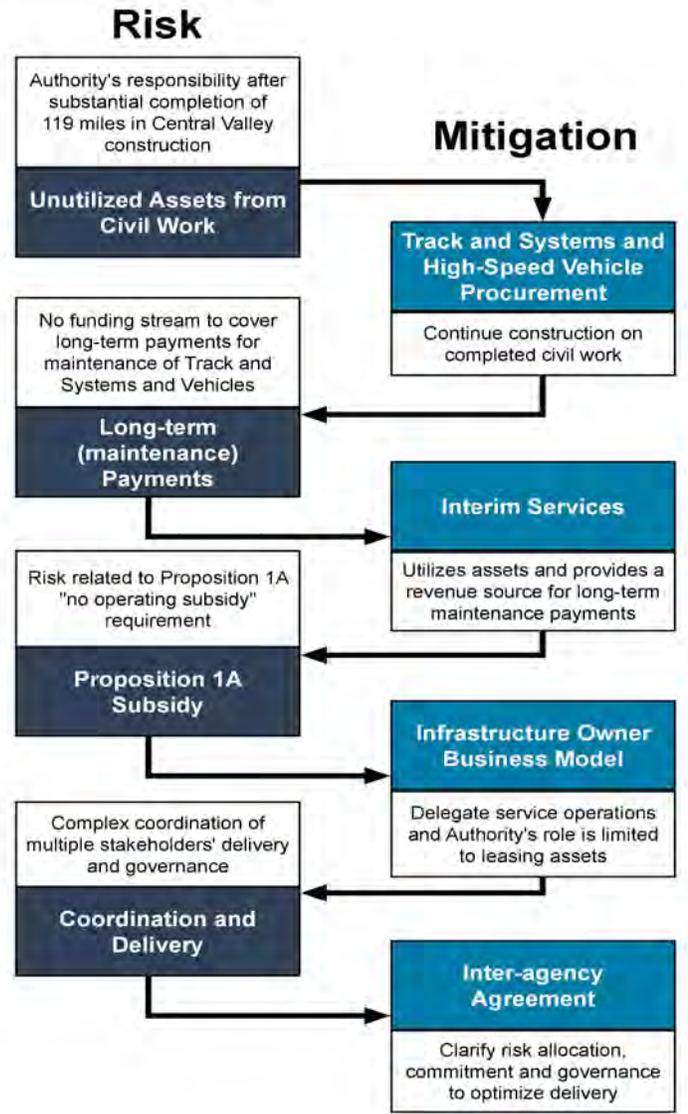


Rendering: San Joaquin River Viaduct



# Risks and Mitigation

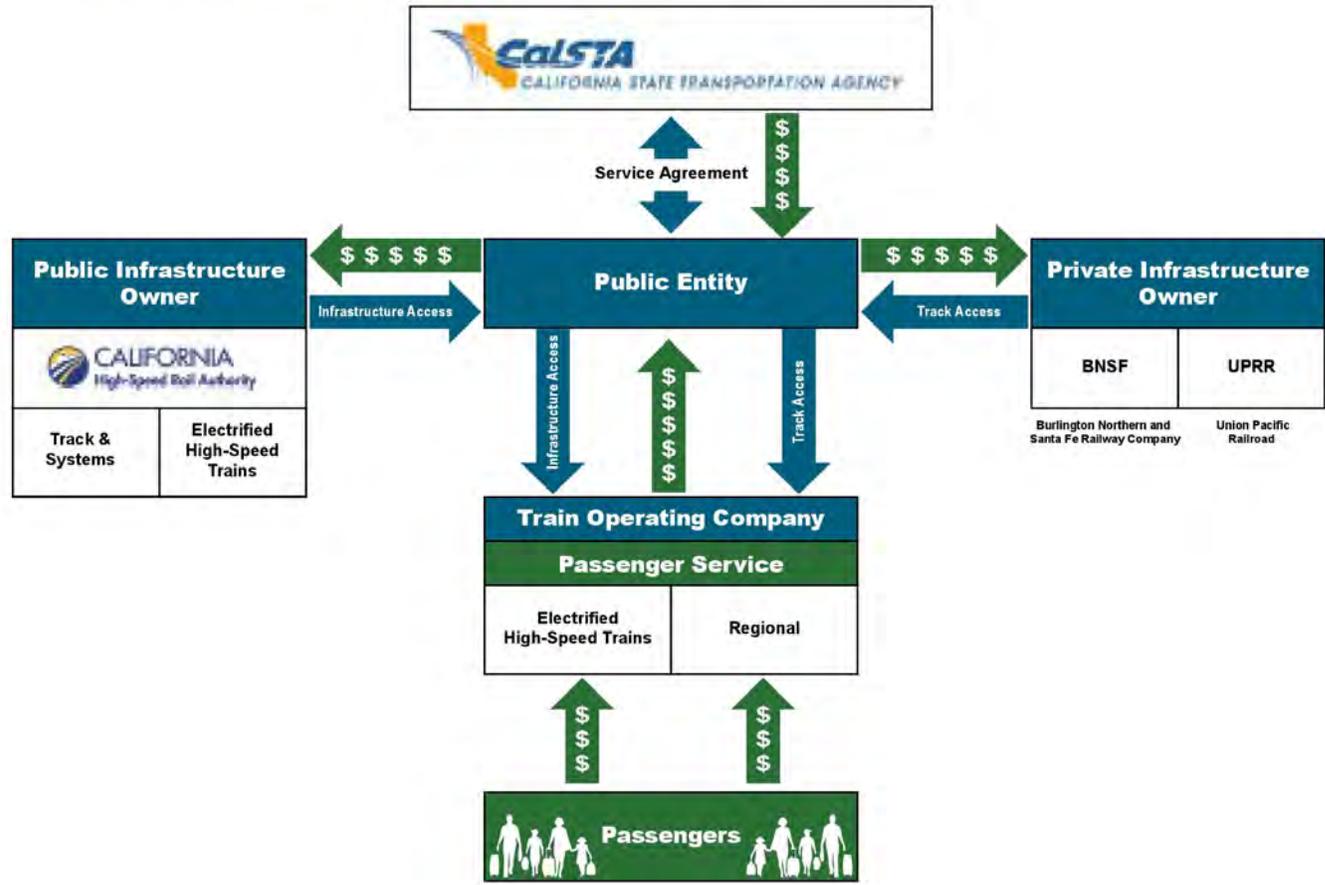
Exhibit 3.0: Interim Service Risk Mitigation





# Interim Service Concept

Exhibit 3.1: Merced-Bakersfield Interim Service Business Model





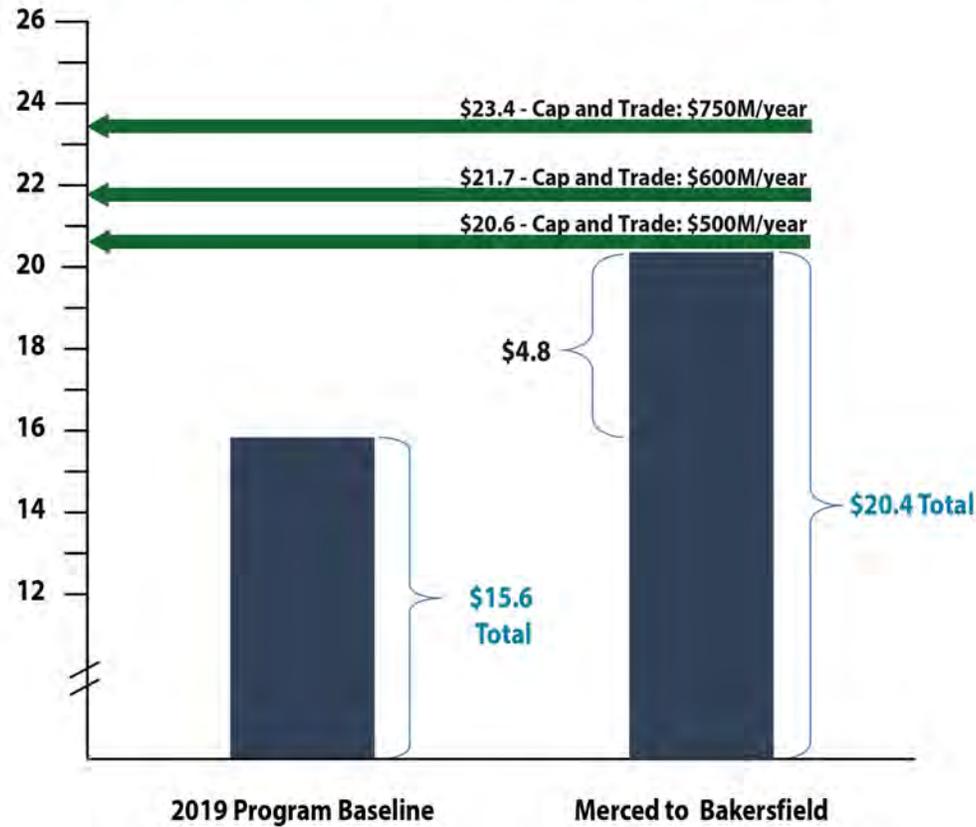
## Benefits to the Regions and the State

- Faster, more frequent and more reliable passenger service than is currently available—reducing the travel time between Bakersfield and Merced by 90 to 100 minutes;
- Partnerships with other operators enhance connectivity to other passenger rail services in Merced, where there is a commitment of nearly \$1 billion to bring the ACE and San Joaquins services to connect with high-speed rail;
- Faster service and greater connectivity provide the highest ridership potential and fare revenue of any other investment option, resulting in a lower State operating subsidy;
- Central Valley air quality is improved by significant reductions in VMT due to higher ridership systemwide, which results in the highest reduction in total system roadway vehicle emissions, and by shifting from diesel to electrified high-speed trains between Merced and Bakersfield; and
- It allows assets constructed for high-speed rail to be used for early testing and electrified, high-speed operations.



# Funding Picture

Exhibit 3.5: Merced to Bakersfield Cost and Funding Comparison (\$/YOE in Billions)



- Questions/Comments?



Rendering: Cedar Viaduct